Where Are We Growing?

Land Use and Transportation in Middle Tennessee

Cover Photographs

© Gary Layda
(*Nashville skyline; Intersection of I-65 and I-440; Davidson County subdivision and farmland; Renovated buildings, Nashville Downtown Historic District*)

© Terry Livingstone
(*Williamson County farm*)

The Southern Environmental Law Center is a non-profit organization dedicated to protecting the natural areas and resources of the South. SELC works with more than 100 local, state, and national groups, providing legal and policy expertise on issues relating to transportation and land use, forests, coasts and wetlands, and air and water quality. This report is part of SELC's Land and Community Project, which promotes sensible growth, smarter transportation choices, community revitalization, and open space conservation.

For additional copies of this report, or for more information about SELC, please visit our website or contact:

Southern Environmental Law Center
201 West Main Street, Suite 14
Charlottesville, VA 22902
phone 804/977-4090
fax 804/977-1483
www.SouthernEnvironment.org

Foreword

These are exciting and challenging times for Middle Tennessee. As a businessman, I've been gratified to watch the dynamic growth of our economy. But I've also watched with concern as we have often developed haphazardly, harming some of our important resources. We need economic growth, but we must grow in ways that maintain our high quality of life — with strong communities and a healthy and clean environment — so that we can continue to attract new residents and businesses.

As a father and grandfather, and as a conservationist, I've been pleased to see citizens in our region coming together to support neighborhood revitalization and environmental protection, actions necessary for long-term growth. And I'm heartened that our political leaders are increasingly focusing on more creative, less destructive solutions to the land use and transportation issues we face. But I'm deeply concerned about the continuing loss of farmland and natural areas, and about the condition of the world we are leaving to future generations.

This report vividly demonstrates the need to develop more sensible ways to grow, and it should be a wake-up call to all of us in Middle Tennessee. The positive steps already being taken in our region are promising, but they are only a beginning. Much more must be done to protect and enhance the incredible resources we all enjoy.

The Southern Environmental Law Center is one of the most effective groups at raising public awareness of the problems and opportunities the South faces, and at protecting our great communities and natural treasures. I am pleased to serve as a member of their Board of Trustees, and to present to you *Where are We Growing?: Land Use and Transportation in Middle Tennessee*. We hope it will inspire new enthusiasm and action in our region.

Martin S. Brown

Martin S. Brown is a director of Protherics PLC, a biopharmaceutical company, and was formerly CEO of Jack Daniels Distillery. He has been a civic leader in Nashville for decades, is a former board member of Fisk University, and currently serves on the boards of the Montgomery Bell Academy, the Land Trust for Tennessee, the Southern Environmental Law Center, and the National Parks Conservation Association.

Where Are We Growing?

Land Use and Transportation in Middle Tennessee

This report was prepared by Trip Pollard and Bruce Appleyard; additional research by Carmen Horner, Louisa Jilcott, and Mike Munson. SELC is grateful to the many people and organizations who contributed information to the report.

Cover Design: helleberg+roseberry

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THE CHALLENGE OF GROWTH

Middle Tennessee is blessed with abundant riches — breathtaking natural beauty, scenic rural landscapes, productive pastures and cropland, vibrant communities that range from historic small towns to a thriving metropolis, and a rich natural, cultural, and historic heritage. This blend of resources makes the region an attractive place to live, work, and visit.

Yet the Middle Tennessee region is being transformed. Its strong quality of life has been a primary factor in making it the fastest growing part of the state, and one of the most rapidly growing areas in the country. Unprecedented population growth, land use development, and economic prosperity are redefining the entire region.

Many of the changes brought by this rapid growth are positive, including higher incomes, more jobs, expanding businesses, low unemployment, increasing property values, and a broader range of cultural activities. But accelerating growth has also resulted in unforeseen consequences. Counties, cities, and towns throughout the region are grappling with the adverse impacts of growth, such as sprawling development that consumes open space and farmland, longer commutes and more traffic congestion, air and water pollution, crowded schools, and the demolition of historic buildings. These impacts are yielding unwelcome notoriety for the region. Nashville was recently ranked the #1 sprawling city by *USA Today*[1] and ranked as having the highest average amount of daily driving per person in the country by the Federal Highway Administration, surpassing even Atlanta.[2]

Citizens, policymakers, and business leaders are increasingly concerned about the costs that result as development spreads in all directions and dependence on motor vehicles grows. Among other things, these costs include:

- costs to taxpayers to provide services such as schools, roads, water, and sewer for far-flung development;
- costs to individuals, families, and employers of time lost in lengthy commutes;
- costs to our health and environment from air and water pollution;
- costs to our local economies of lost farmlands, and the loss or impairment of natural and historic resources that attract tourist spending;
- costs to our communities from the loss of a sense of place as open space disappears and neighborhoods are transformed.

In short, the challenges posed by rapid growth threaten the very things that make the region so attractive.

Important choices must be made. The question is not *whether* Middle Tennessee will grow, but *how* the region will grow.

Decisionmakers and citizens are increasingly realizing that growth needs to be guided, rather than haphazard, in order to have a strong economy that does not come at the expense of communities, taxpayers, and the environment. There is greater recognition that development decisions are

not simply the result of the free market, but are influenced by a broad range of governmental incentives and regulations that encourage sprawl. There is growing awareness of the regional scale of many of the challenges of growth, and the need to develop solutions at both a regional and a local level. And there is more understanding of the limitations of current approaches to land use and transportation. For example, although it is intuitively appealing to think that new roads can solve our traffic problems, experience has shown that they often do not, because new roads encourage more scattered development and more driving.

Creative solutions are taking hold in Middle Tennessee as interest builds in finding better ways to grow. Like many other communities throughout the South, and throughout the nation, there is a new willingness to experiment with alternative approaches to transportation and land use that can provide a wider range of choices, more sustainable growth, attractive, prosperous communities, and a healthy environment.

This report examines the changes in population, land use, and transportation that are transforming Middle Tennessee.[3] Pulling together and interpreting data from a variety of sources, it presents a snapshot of current conditions and trends shaping the region, and examines how the region compares to the rest of the state and to similar areas in other states. The report also identifies some of the promising options to capture the benefits of growth while avoiding some of the costs of sprawling development, and highlights some of the efforts already underway in Middle Tennessee to implement these options. These efforts include steps to guide growth to existing communities, to develop a more balanced, less destructive transportation system, and to protect farmland and open space.

Sprawling development patterns and a transportation system heavily oriented toward new road construction and motor vehicle use are beginning to exact a heavy price, undermining the rich quality of life in Middle Tennessee. We can continue with "business as usual," or we can develop long-term solutions that promote economic vitality and safeguard our beautiful countryside, our pocketbooks, our communities, and our environment.

The choice is ours.

ENDNOTES

[1] Haya El Nasser and Paul Overberg, "What you don't know about sprawl," *USA Today*, February 22, 2001. Although there are problems with the methodology of this study, it nonetheless indicates the severity of the issue and the potential for negative publicity for the region. See also, Jay Hamburg, "Nashville's No. 1 ranking in sprawl is wake-up call for officials," *The Tennessean*, February 23, 2001.

[2] Office of Highway Policy Information, Federal Highway Administration, *Highway Statistics 1999* (available at www.fhwa.dot.gov/ohim/ohimstat.htm)

[3] This report examines the 10 county Middle Tennessee region that surrounds Nashville and includes the counties of Cheatham, Davidson, Dickson, Maury, Montgomery, Robertson, Rutherford, Sumner, Williamson, and Wilson.

POPULATION GROWTH AND ECONOMIC DEVELOPMENT TRENDS

Middle Tennessee has experienced tremendous growth in population, employment, and economic development. This growth has dramatically altered the region.

Population Growth and Distribution

New census data show that Tennessee's population grew 16.7% between 1990 and 2000, from just under 4.9 million to almost 5.7 million people.[1] Overall, population in the U.S. expanded by 13.2% during the past decade.

As the chart at right shows, the 10-county Middle Tennessee region grew at an even more rapid pace, with population increasing by approximately 25.5% between 1990 and 2000. This population surge was almost double the rate of the statewide increase, and brought the total population in the region up to 1,431,578. Williamson and Rutherford were the two fastest growing counties in the state, and six of the twelve fastest growing counties in Tennessee are in this region. A number of cities in the area also experienced explosive population growth. For example, the city of Franklin more than doubled its population during the past ten years.

Population Growth 1990-2000
Middle Tennessee Counties

	1990	2000	Percentage Increase	Amount Increase
Cheatham	27,140	35,912	32.3%	8,772
Davidson	510,784	569,891	11.6%	59,107
Dickson	35,061	43,156	23.1%	8,095
Maury	54,812	65,498	19.5%	10,686
Montgomery	100,498	134,769	34.1%	34,271
Robertson	41,494	54,433	31.2%	12,939
Rutherford	118,570	182,023	53.5%	63,453
Sumner	103,281	130,449	26.3%	27,168
Williamson	81,021	126,638	56.3%	45,617
Wilson	67,675	88,809	31.2%	21,134
Region	1,140,336	1,431,578	25.5%	291,242
Tennessee	4,877,185	5,689,283	16.7%	812,098

Source: US Bureau of the Census

The Nashville MSA is a federal classification that includes all of the 10-county Middle Tennessee region except for Maury and Montgomery counties. Population figures for this area show a 25% increase between 1990 and 2000. This was the highest growth rate of any metropolitan area in the state, and meant that during the past decade Nashville became the state's most populous metro area.

Population Growth 1990-2000
Nashville and Other Tennessee Metro Areas

National Rank	Metropolitan Statistical Area	Census Population April 1, 1990	Census Population April 1, 2000	Change, 1990 to 2000 Amount	Change, 1990 to 2000 Percent
37	Nashville	985,026	1,231,311	246,285	25.0%
47	Clarksville-Hopkinsville, (TN-KY)	169,439	207,033	37,594	22.2%
80	Knoxville	585,960	687,249	101,289	17.3%
134	Memphis, (TN-AR-MS)	1,007,306	1,135,614	128,308	12.7%
160	Johnson City-Kingsport-Bristol, (TN-VA)	436,047	480,091	44,044	10.1%
165	Chattanooga (TN-GA)	424,347	465,161	40,814	9.6%

Source: US Bureau of the Census

The population increase in the Nashville MSA between 1990 and 2000 was the 37th highest rate of growth of any metropolitan area in the country. Nashville's population growth rate was below that of Atlanta, the Raleigh-Triangle, and Charlotte areas, but several times that of areas such as Birmingham and Louisville.

Population Growth 1990-2000
Nashville and Other Metro Areas

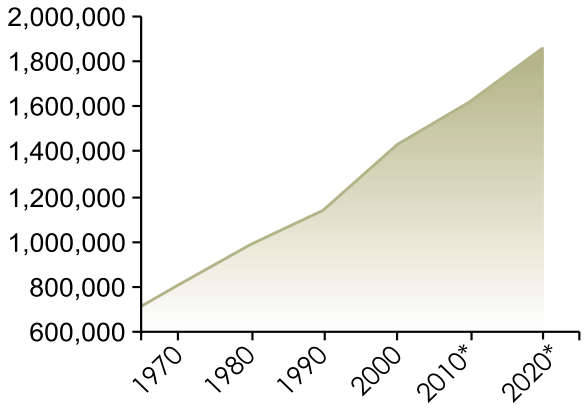
National Rank	Metropolitan Statistical Area	Population April 1, 1990	Population April 1, 2000	Change, 1990 to 2000 Amount	Change, 1990 to 2000 Percent
11	Atlanta	2,959,950	4,112,198	1,152,248	38.9%
12	Raleigh/Durham/Chapel Hill	855,545	1,187,941	332,396	38.9%
26	Charlotte/Gastonia/Rock Hill (NC-SC)	1,162,093	1,499,293	337,200	29.0%
37	Nashville	985,026	1,231,311	246,285	25.0%
164	Birmingham	840,140	921,106	80,966	9.6%
182	Louisville (KY-IN)	948,829	1,025,598	76,769	8.1%

Source: US Bureau of the Census

Not only is the population in the Middle Tennessee region climbing quickly, but the relative distribution of population within the region is changing as well. For example, although Davidson remains by far the most populous county in Middle Tennessee, Rutherford County added more people in the past decade, and Davidson had the rate of population increase of any county in the region.

As a result of this broader distribution of population growth, the combined population of the seven counties that ring Davidson County has now surpassed the population of Davidson.[2]

Past and Projected Population Increase



Sources: Us Bureau of the Census and * Population Projections for Tennessee Counties and Municipalities," March 1999. (Center for Business and Economic Research - University of Tennessee, Knoxville)

The tremendous population growth in Middle Tennessee is expected to continue. The Center for Business and Economic Research at the University of Tennessee - Knoxville has estimated that population in the 10-county region will grow to over 1.86 million by 2020.[3] If anything, this projection may underestimate likely population growth; the study projected 38,335 fewer residents would live in the region by 2000 than the census numbers reflect. As the table

at right shows, this projected growth would continue the trend towards greater dispersal of population throughout the region.

Projected Population Growth 2000-2020
Middle Tennessee Counties

	2000	2020	Percentage	Amount
Cheatham	35,912	62,435	74%	26,523
Davidson	569,891	605,030	6%	35,139
Dickson	43,156	64,480	49%	21,324
Maury	65,498	83,793	28%	18,295
Montgomery	134,769	202,680	50%	67,911
Robertson	54,433	72,627	33%	18,194
Rutherford	182,023	263,701	45%	81,678
Sumner	130,449	187,218	44%	56,769
Williamson	126,638	190,359	50%	63,721
Wilson	88,809	128,101	44%	39,292
Region	1,431,578	1,860,424	30%	428,846

Sources: US Bureau of the Census
Center for Business and Economic Research - University of Tennessee

Economic Development

Middle Tennessee's economy has also experienced substantial growth. This growth in economic development is linked to the region's burgeoning population. As Jim Rhody, a consultant with the University of Tennessee's Center for Government Training, has noted, "People go where the jobs are, and Nashville's economy is leading the state's economy."[4] Employment – particularly in the service sector – tends to follow population.

As the chart below indicates, the region experienced a 31% increase in jobs between 1991 and February 2001. Nashville-Davidson continues to be the dominant employment center in the region.[5] Moreover, more jobs continue to be created there – 40,243 between 1991 and February, 2001 – than in any other locality in the region. Other counties, however, have had a much faster rate of job growth as Middle Tennessee develops more of a regional economy.

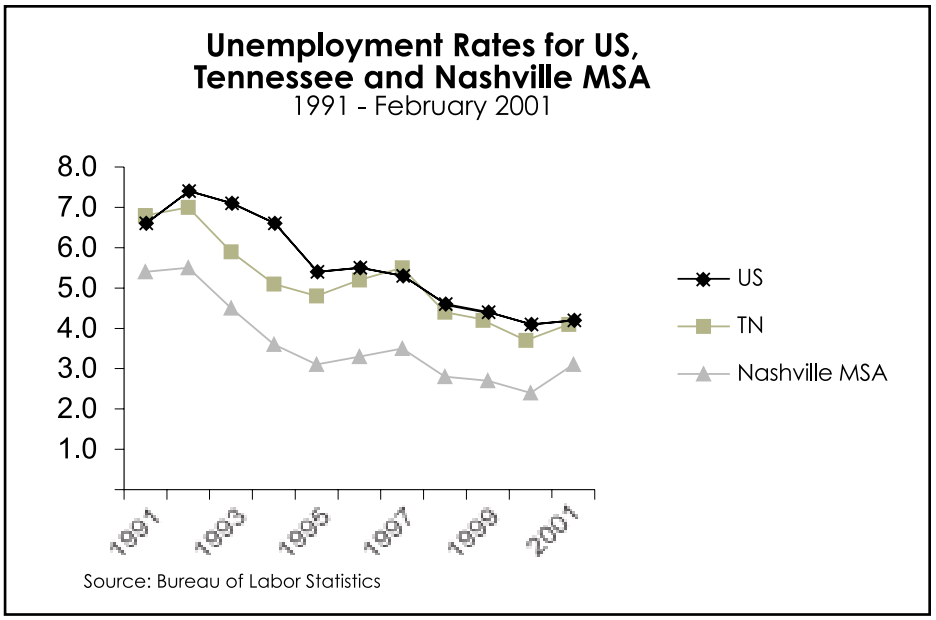
Employment 1991 - 2001
(not seasonally adjusted)

	Number Employed		Amount	Percentage
County	1991	Feb 2001	Change	Change
Cheatham	13,589	19,607	6,018	44%
Davidson	260,559	300,802	40,243	15%
Dickson	16,093	21,565	5,472	34%
Maury	27,883	35,603	7,720	28%
Montgomery	38,587	57,515	18,928	49%
Robertson	20,120	28,853	8,733	43%
Rutherford	62,628	96,552	33,924	54%
Sumner	51,574	68,757	17,183	33%
Williamson	42,468	68,953	26,485	62%
Wilson	34,380	47,679	13,299	39%
Regional Total	567,881	745,886	178,005	31%

Source: Bureau of Labor Statistics

Although nationwide the economy is slowing, and expectations are that the Middle Tennessee economy will slow somewhat from its booming pace, strong job creation has been projected to continue in the region. For example, a 69% rate of growth has been projected for Davidson, Rutherford, Sumner, Williamson, and Wilson counties by the year 2025. [6]

As a result of the strong pace of job creation, the region has consistently enjoyed a low unemployment rate. The unemployment rate in February 2001 was 3.1% in the Nashville MSA, well below the 4.1% level statewide and the 4.2% national unemployment rate.



Incomes have also risen substantially. During the lengthy economic expansion, the region's per capita personal income increased 176% between 1980 and 1997, rising from $8,387 in 1980 to $16,492 in 1990 to $23,150 in 1997.[7]

ENDNOTES

[1] The statistics in the first part of this section were taken or derived from U.S. Census Bureau data. See www.census.gov.

[2] Jay Hamburg, "Outlying area grows larger than Davidson," *The Tennessean,* March 25, 2001.

[3] Center for Business and Economic Research, University of Tennessee - Knoxville, "Population Projections for Tennessee Counties and Municipalities," March 1999 (http://cber.bus.utk.edu).

[4] Noble Sprayberry and Jay Hamburg, "Williamson boom leads state as Davidson grows by 11.6%," *The Tennessean*, March 23, 2001.

[5] US Bureau of Labor Statistics.

[6] Nashville Area Metropolitan Planning Organization.

[7] U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Measurement Division, Regional Economic Information System 1969-1997.

LAND USE TRENDS

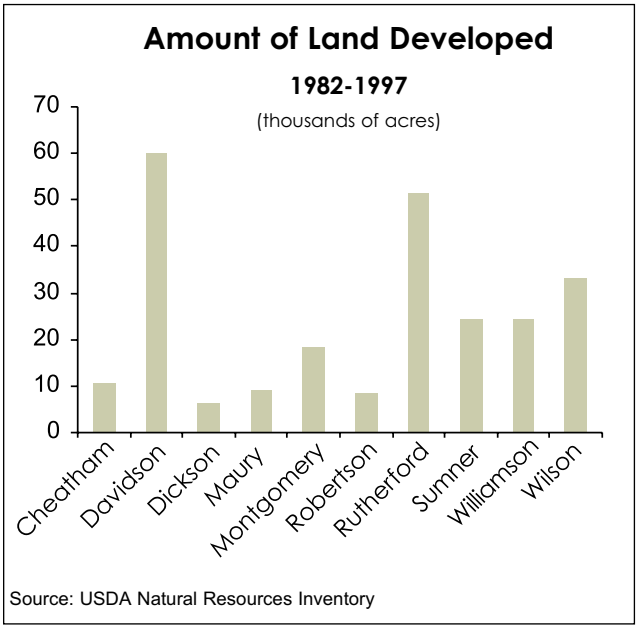
Population surges in the region – coupled with land use and transportation policies that tend to favor sprawling development – are having tremendous impacts on our land.

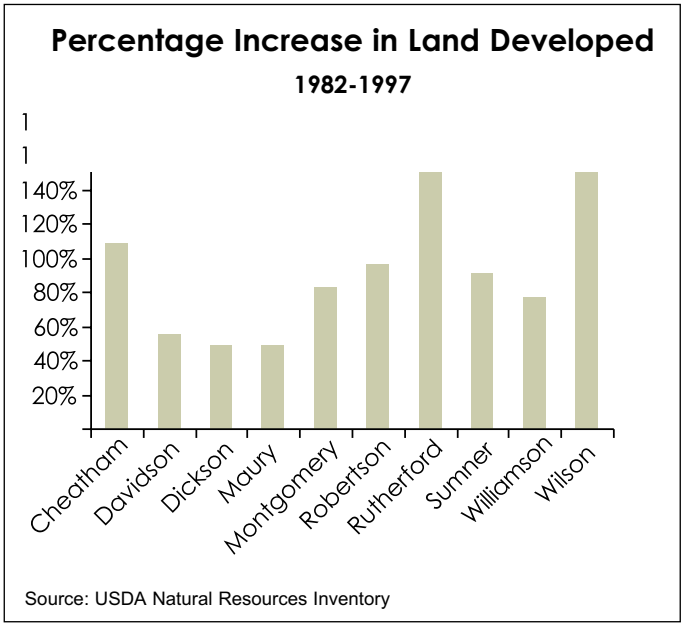
Land Development

Statewide, the U.S. Department of Agriculture has estimated that 401,000 acres of open space were developed between 1992 and 1997 for projects such as new homes, businesses, roads, and parking lots.[1] This was the 7th highest amount of land lost in the nation.

In the 10-county Middle Tennessee region, it has been estimated that 110,000 acres of open space were converted to development between 1992 and 1997. This rate of development translates into an average of 22,000 acres each year, or 60 acres each day. This is a substantial increase from the already significant rate of the previous ten years, when a total of 135,000 acres were developed between 1982 and 1992, an average of 13,500 acres each year.

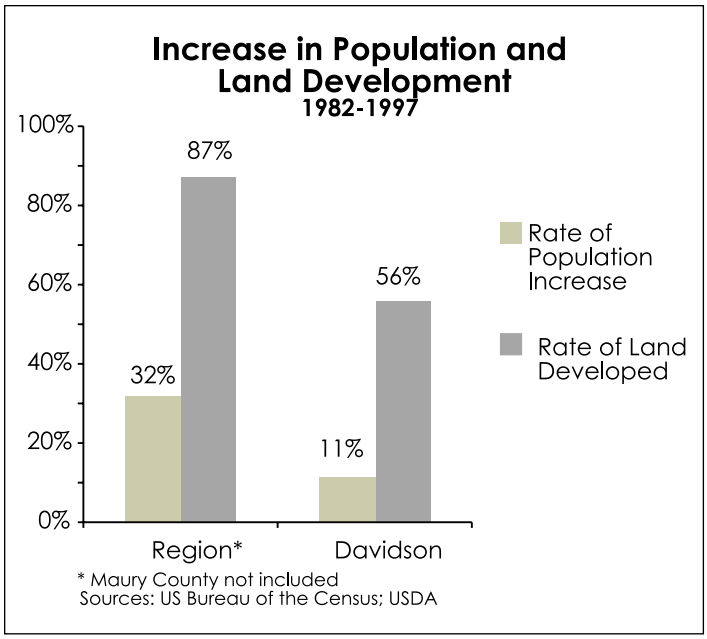
There are some significant differences among Middle Tennessee counties in both the amount and the rate of land developed. The greatest amount of land developed between 1982 and 1997 was in Davidson and Rutherford counties, while the greatest percentage increase in the amount of land developed between 1982 and 1997 was in Rutherford, Wilson, and Cheatham counties.





The explosive growth in land development is not merely a factor of population increases. Development has greatly outpaced population growth in the region. Between 1982 and 1997, the amount of land developed in the region increased almost three times as fast as population, with development increasing by 87% in the region, while population increased by approximately 32%.[2]

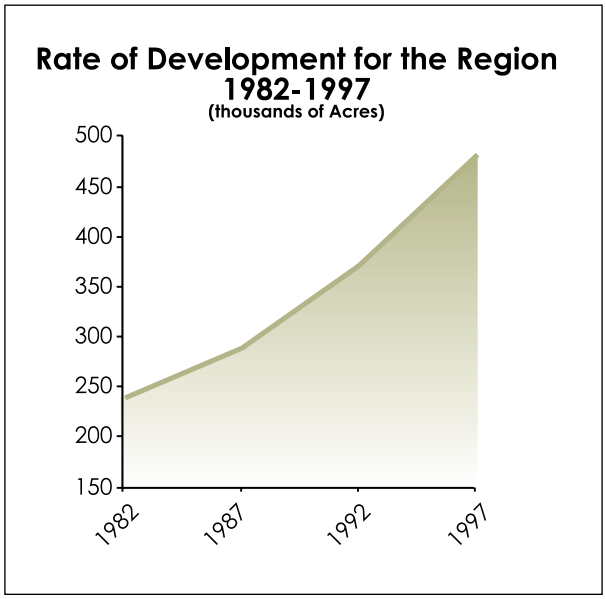
The disparity between development and population growth is even greater in some areas. In Davidson County, for example, land development rose five times faster than population. Population in Davidson increased approximately 11% between 1982 and 1997, while the amount of land developed increased by 56%.



Farmland Loss

Of the 401,000 acres developed statewide between 1992 and 1997, 124,000 acres were prime farmland. On average, this means that the state has been losing 24,000 acres of prime farmland each year, or 65 acres each day.

In the 10-county Middle Tennessee region, an estimated 18,100 of the 110,000 acres developed between 1992 and 1997 were prime farmland. On average, this means that 3,620 acres of prime farmland are being developed each year.



As a result of such losses, the American Farmland Trust has ranked an area in Middle Tennessee that includes most of the counties examined in this report as one of the most threatened farming regions in the United States.[3]

Forest Loss

The rate of forest land loss in the region is also accelerating. Between 1992 and 1997, an estimated 40,000 of the 110,000 acres of the open space developed were forest lands. This is the same amount that was consumed over the entire previous 10-year period. The current rate of forest land development translates into an average loss of 8,100 acres per year, or 22 acres per day.

ENDNOTES

[1] U.S. Department of Agriculture, 1997 Natural Resources Inventory (NRI). All figures on land and farmland conversion in this section are contained in this database, were received as a result of data requests to USDA staff, or are derived from analysis of this database by SELC. Data on land loss is based on statistical sampling, and is therefore based on an estimate rather than actual observation.

[2] Population numbers derived from U.S. Bureau of the Census statistics; rate of land loss figures from USDA's Natural Resources Inventory.

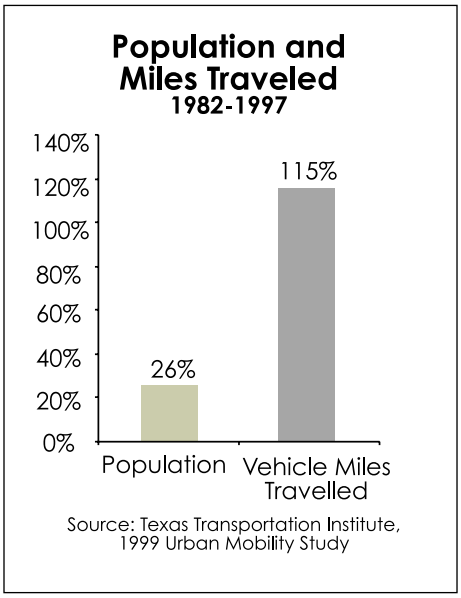
[3] American Farmland Trust, *Farming on the Edge*, 1997.

[4] For more information, see the Rediscover East! website at http://www.rediscovereast.org.

[5] Colleen Creamer, "Property values in East Nashville jump by 28.6%," *The City Paper*, April 18, 2001.

TRANSPORTATION TRENDS

Transportation is essential to our quality of life and central to economic development. The transportation systems that have been built statewide and in Middle Tennessee have brought many benefits, including fueling the region's prosperity, as well as many challenges. Emerging transportation trends will be a major factor in determining the shape of the region's future.[1]

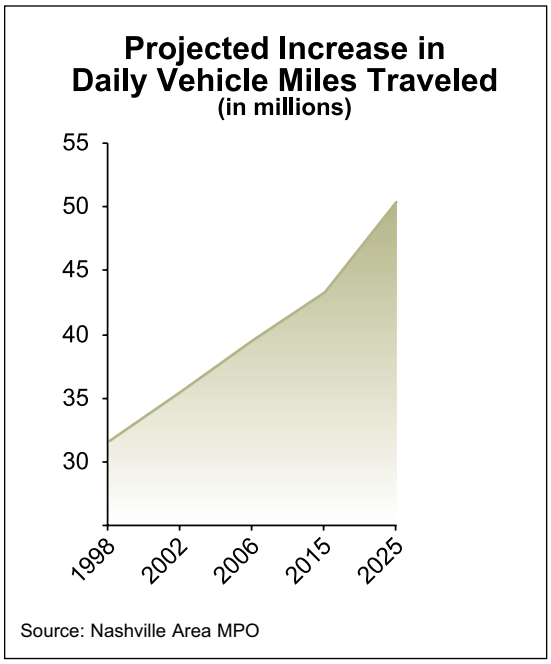


Driving, Congestion, and Roadbuilding

Motor vehicles are the dominant mode of personal transportation throughout virtually all of the United States. In Middle Tennessee, a recent survey of travel behavior found that 93% of all trips are taken by automobile.[2]

The distances we travel and the amount of time we spend in our cars have skyrocketed in the region. According to the Federal Highway Administration, people in the Nashville area now have the highest rate of motor vehicle travel in the entire country – an average of 37.7 miles per person per day.[3] This rate even surpasses Atlanta (34.2 miles per person per day), as well as cities such as Birmingham (34.4), Charlotte (33.7), Louisville (29.8), and Memphis (24.3).

The increase in the number of miles traveled in the area greatly exceeds the increase in population. Between 1982 and 1997, population in the Nashville area rose by 26%, while the amount of vehicle travel increased 115%.



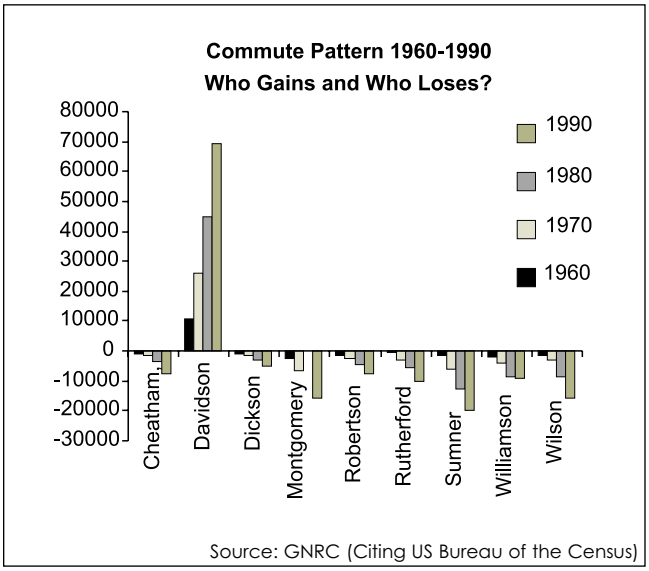
A 1998 study of travel behavior in Davidson, Rutherford, Sumner, Williamson, and Wilson found that residents of these counties make an average of 4.5 trips a day.[5] Each day in these five counties people travel a total of over 31.5 million miles in motor vehicles.[6] This means that approximately every three days, people in these counties drive roughly the distance to the sun.

The number of vehicle miles traveled is projected to continue to rise steadily in these counties, increasing by 62% to reach a total of more than 50.4 million miles per day by 2025.[7]

Transportation and land use are intertwined. One of the factors accounting for the dramatic increase in driving in this region is the trend toward more scattered land development examined in the previous section. As develop-

ment spreads farther and farther out, we have little choice but to drive – and to drive longer distances – to work, buy groceries, see a movie, or take our children to school.

Commuting patterns also underlie some of the increase in driving in the region. Although more and more car trips are for purposes other than going to and from work, the commute patterns in the region are uneven, with a net of approximately 70,000 commuters entering Davidson County to work, and increasing numbers of commuters leaving every other county to work.

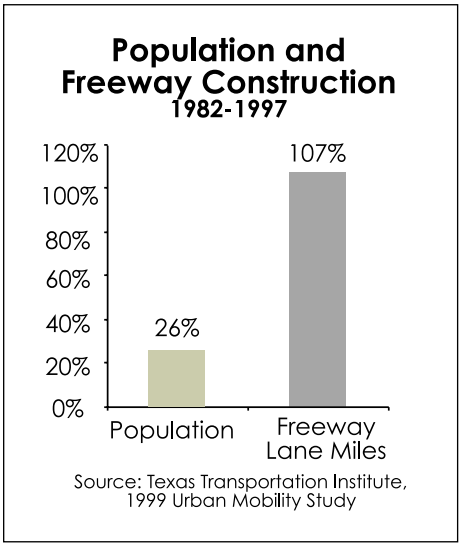


Moreover, most commuters drive alone. In 1990, it was estimated that 79.1% of people travelling to work in the Nashville metropolitan statistical area drove alone.[8] This rate was the 8th highest among the 50 largest metropolitan areas in the country, surpassing the single vehicle occupancy rate for areas such as Atlanta, Charlotte, and Memphis.

Given the rapid growth in driving, the increasing distance between destinations as the area sprawls, the increasing population of the region, and the high rate of solo driving, it is not surprising that traffic congestion is also increasing. Between 1980 and 1997, the number of hours lost per person to congestion in the Nashville area rose rapidly, expanding from a mere 6 hours per year to 35 hours.[9] The current level is the 16th highest rate of delay per capita in the country.

This increase in congestion has occurred despite the fact that the amount of new roads built has been increasing faster than population. Between 1980 and 1997, population climbed by 26% while the number of miles of freeway lanes increased by 107%.[10] Moreover, as the Nashville Area Chamber of Commerce has noted, "Tennessee already leads the nation in per capita spending to build and maintain roads."[11]

Traffic congestion is projected to get even worse in Middle Tennessee. It has been estimated that the average amount of vehicle delay per driver will increase from 4.32 minutes per day in 1998 to 14.2 minutes by 2015 and 19.56 minutes by 2025 in Davidson, Rutherford, Sumner, Williamson, and Wilson counties.



Moreover, these projections of escalating delays will occur despite plans to spend over $3.8 billion on transportation in the area by 2025, with 84% of that money going to new, widened, or improved roads.

As the Nashville Area Chamber of Commerce has observed, "roads cannot be built fast enough — or cheaply enough — to meet the demands of a growing population."[12] One problem is that, although it is intuitively appealing to think that new roads can

reduce congestion, studies have shown that they often do not. We cannot build our way out of congestion because demand for roads does not remain constant. Although new highways may provide temporary traffic relief, they also generate more travel. New highways spur development in outlying areas, which in turn lengthens and increases the number of automobile trips, increasing congestion. Expanded capacity also leads motorists to change their behavior, switching from other travel routes, and encouraging people to drive rather than use alternative means of transportation. Some studies, for example, have shown that up to 90 % of increased metropolitan road capacity is filled within four to five years.[13]

In addition, widening roads results in construction delays when existing lanes are closed temporarily, creating additional traffic bottlenecks and delays. A national study looking at this issue found that it can take drivers years to make up for the time lost due to construction delays.[14]

Public Transit

Transit includes a range of vehicles and services that carry multiple passengers, such as buses, trolleys, vanpools, light rail, and commuter rail. Transit can be local or regional, public or private.

Nationwide, the number of people riding public transportation is at its highest level in 40 years. Riders took approximately 9.4 billion trips on mass transit in 2000, a 3.5% percent increase from the previous year and a 21% increase over the past five years.[15]

In the Middle Tennessee region, the Metropolitan Transit Authority (MTA) provides buses, trolleys, vanpools, and paratransit (on demand transportation for the elderly and persons with disabilities) services in Nashville-Davidson, and they help employers establish ridesharing programs. In addition, the Regional Transportation Authority (RTA)[16] operates three bus routes traveling between downtown Nashville and Murfreesboro, Hendersonville, and Mount Juliet, as well as services such as a rideshare program that organizes vanpools and carpools throughout Middle Tennessee.

Over 6.8 million trips were taken on MTA vehicles in 2000.[17] Ridership along the fixed routes MTA operates has remained relatively flat in recent years, at around 7 million trips, although ridership on services such as paratransit that are demand-responsive increased in 2000 over 13% from the previous year. Absent a major increase in funding, however, overall MTA ridership is expected to increase approximately .5% per year.[18]

Bicycling and Walking

Transportation planning in the region has tended to ignore bicycling and walking as viable options. A recent study in Nashville-Davidson noted that bicycling and walking facilities are "minimal," thus discouraging such means of transportation.[19] Not surprisingly, bicycling and walking do not account for a significant percentage of travel within the region. A survey of travel in the Nashville area found that 1.6% of all trips were taken by walking.[20]

ENDNOTES

[1] This report will focus almost exclusively on surface transportation. It will not explore air and water transportation, nor will it examine freight rail.

[2] Nashville Area *1998 Travel Behavior Study*, cited in Nashville Metropolitan Planning Organization (MPO), *2025 Nashville Area Long Range Transportation Plan* (LRTP), pp. 63-64. This study focused on Davidson, Rutherford, Sumner, Williamson, and Wilson counties, the five counties within the MPO region. The MPO is responsible for transportation planning and for allocating federal transportation funds in this area.

[3] Office of Highway Policy Information, Federal Highway Administration, *Highway Statistics 1999* (available at http://www.fhwa.dot.gov/ohim/ohimstat.htm).

[4] Texas Transportation Institute, *1999 Urban Mobility Study* (http://mobility.tamu.edu). Although the geographic area included in this database for Nashville has expanded over time, the same area was used each year to assess population and vehicle miles traveled.

[5] 2025 LRTP, p. 15.

[6] *Ibid*, p 63.

[7] *Id.*

[8] U.S. Bureau of the Census (www. census.gov/population/socdemo/journey/msa50.txt). The Nashville MSA includes all of the counties that are the focus of this report except Montgomery and Maury.

[9] Texas Transportation Institute, *1999 Urban Mobility Study*.

[10] *Ibid*

[11] Nashville Area Chamber of Commerce, "Beyond Gridlock: An attainable transportation program for Middle Tennessee," June 1999, p. 4.

[12] *Ibid*

[13] Hanson and Huang, "Road Supply and Traffic in California Urban Areas," *Transportation Research*, Vol. 31, No. 3, March 1997. Other studies have confirmed this phenomenon, which is often referred to as "induced demand," although results differ as to the size of the impact. See, e.g., Fulton, et al, "A Statistical Analysis of Induced Travel Effects in the U.S. Mid-Atlantic Region (presented at 79th Annual Meeting of the Transportation Research Board, January 2000) (26 years of data from every county in North Carolina, Virginia, and Maryland suggest that every 10% increase in lane-miles led to a 3.3% increase in travel; for Virginia, the data showed a 5.1% increase in travel).

[14] Surface Transportation Policy Project, *Road Work Ahead: Is Construction Worth the Wait?* (1999).

[15] American Public Transportation Association, *Transit Ridership Report*, 4th Quarter, 2000(www.apta.com).

[16] RTA includes all of the 10 counties that are the focus of this report except for Montgomery.

[17] APTA, *Transit Ridership Report*, 4th Quarter 2000 (www.apta.com).

[18] Interview with Bob Babbitt, MTA director, April, 2001.

[19] *Toward A Walkable, Bikeable, More Livable Nashville,* Final Report of the Metro Nashville Traffic and Pedestrian Safety Task Force, August 1998

[20] *1998 Nashville Area Travel Behavior Study*, p. 7.

IMPACTS OF CURRENT TRENDS

The prevailing land use and transportation trends in Middle Tennessee are producing significant economic, fiscal, social, health, and environmental impacts, all of which affect our quality of life.

Economic and Fiscal

Although the Middle Tennessee region has enjoyed strong economic growth, current land use and transportation trends threaten the long-term health of both the regional and local economies.

A recent national report found that business leaders "are recognizing that quality of life directly affects economic prosperity, and that sprawl threatens quality of life in many communities" and that these leaders "increasingly are concerned that sprawl is making it more difficult to access, attract, and maintain a qualified workforce."[1] Similarly, a site selection consultant has advised that the Nashville area cannot remain a premier competitor for economic development unless it can alleviate traffic congestion and maintain the region's high quality of life and reputation as a desirable location for businesses and employees.[2]

The air pollution impacts accompanying the rapid rise of driving in the region pose a further threat to economic development. As discussed more fully below, although the area has come into compliance with older air pollution standards set under the Clean Air Act, it exceeds the tighter new standard for ozone pollution. Davidson, Rutherford, Sumner, Williamson, and Wilson counties are likely to be designated as not meeting the new standard, a designation that could make the region less attractive to industry.[3]

Current land use and transportation trends can also adversely impact local economies by undermining tourism. Tourism is a $9 billion a year industry in Tennessee, the second largest industry in the state, and the source of over 300,000 jobs statewide.[4] It is also a major factor in the economy of most localities in the state, and generated over $78 million in local revenues in the 10-county Middle Tennessee region in 1998.[5] The loss of rural landscapes and historic resources due to development, mounting traffic congestion, and pollution from motor vehicles can all adversely impact this industry.

The fiscal impacts of current growth patterns can also undermine the economic vitality of localities and burden taxpayers. Proposed developments are frequently justified on the basis of the tax revenues they will bring to a city or county. All too often, however, localities are faced with the reality that growth does not pay for itself and can lead to higher tax rates or higher debt. Although new development does bring increased revenues to local governments, far-flung development often does not generate enough taxes to pay for the new roads, water lines, schools, and other infrastructure and services that need to be provided. At the same time, infrastructure that taxpayers have already paid for may be underused or abandoned as development spreads outward.

A host of studies have examined the fiscal impacts of sprawl.[6] These impacts vary depending on the nature of the locality and the type and location of development involved, but two Tennessee studies are instructive. A study for Rutherford County examined the fiscal impacts of constructing 100 average-priced single family homes. It concluded that the likely costs to taxpayers to provide facilities and services to these homes would be over $3.3 million over 20 years, more than three times the amount of revenue they would produce during that period.[7] A second study investigated various scenarios for industrial growth in Franklin County, concluding that in all but 3 of the 24 scenarios examined the cumulative net fiscal impact of growth over a 14 year period would be negative.[8]

Fiscal impact studies have also consistently shown that farmland and open space is far more beneficial to a locality's bottom line than is often assumed. Productive farms and forests frequently are viewed as merely waiting to be developed to their "highest and best use." Yet studies of over 70 communities have shown that farm, forest, and other open space lands typically pay far more in local tax revenues than it costs the locality to provide services to these properties.[9] A primary reason for this, it has been observed, is that "cows don't go to school."

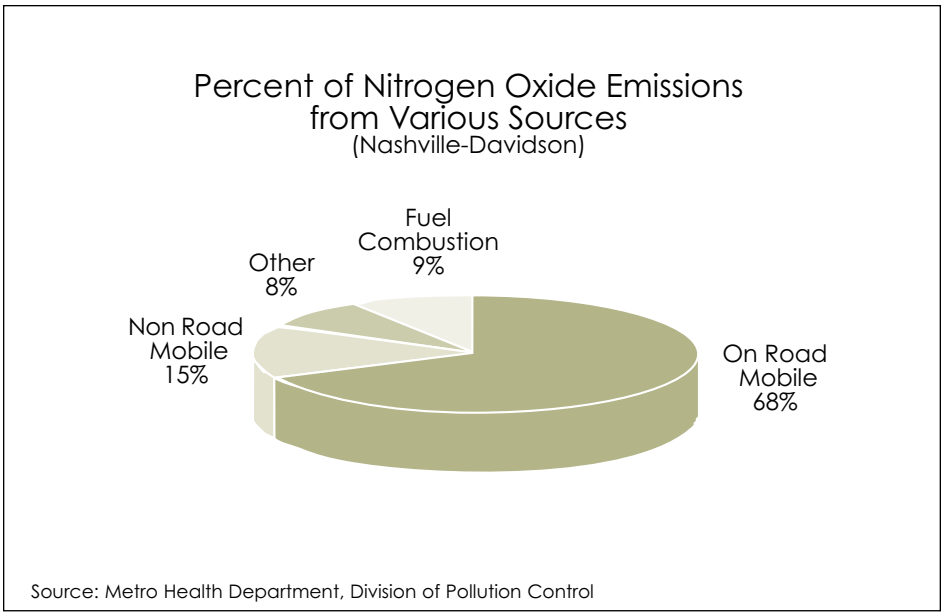
Growth can also have a significant impact on household budgets. According to the Bureau of Labor Statistics' Consumer Expenditure Survey (CES), southern households spend an average of 20 cents out of every dollar on transportation, second only to housing expenditures. The typical southern household spends an average of $6,612 per year on transportation, more than families in the region spend on health care and food combined.[10] Transportation costs tend to be highest in areas with the most sprawl, since increased distances between home, work, school, and other activities increase the need and the costs to drive.[11]

Environmental Quality

From air and water pollution to the loss of wildlife habitat and open space, the region's land use and transportation patterns are having substantial environmental impacts.

Air Pollution

Transportation is a major source of air pollution, emitting roughly 83% of the nitrogen oxide, 87% of the carbon monoxide, half of the volatile organic compounds, and a quarter of the sulfur dioxide in Nashville-Davidson.[12] The bulk of this pollution, which contributes to problems such as acid rain, visibility impairment, and ground-level ozone, comes from motor vehicles. Transportation also produces a significant amount of particulate matter, lead, asbestos, rubber, and other hazardous pollutants.[13]



The Nashville area previously failed to meet federal Clean Air Act standards for ground-level ozone, which is formed when nitrogen oxides and volatile organic compounds combine in the presence of heat and sunlight. Air quality improved enough that the area was deemed in attainment in 1996. However, the region continues to exceed both the older 1-hour ozone standard and a newer, tighter 8-hour standard.[14] According to the Tennessee Department of Environment and Conservation's Air Pollution Control Office, the new 8-hour standard for ozone was violated 37 times in the 10-county region last year.

Violation of Ozone Health Standards
1996-2000

County	1996-1999 (1-hour standard)	2000 (8-hour standard)
Davidson	5	5
Dickson	1	0
Rutherford	0	5
Sumner	7	14
Williamson	0	7
Wilson	1	6
Region	14	37

[Source: 1 hour data: EPA, Office of Air Quality Planning & Standards; 8 hour data: TDEC Air Pollution Control Office

Although technological innovations and federal requirements have sharply reduced emissions from individual vehicles, the steady increase in the number of miles we are driving and the amount of fossil fuels we are burning is negating many of these gains. In the 10-county region of Middle Tennessee, it has been estimated that over 705 million gallons of gasoline were sold in 1997.[15]

Motor vehicles are also a primary source of carbon dioxide, which is contributing to global climate change. Nationwide, transportation accounts for approximately one-third of the carbon dioxide released,[16] and motor vehicles in the U.S. emit an average of more than one pound of carbon dioxide for each mile they travel.[17]

Water Pollution

Development and transportation are also a primary source of water pollution. Buildings, roads, and parking lots are replacing hundreds of thousands of acres of forests, farms, and wetlands in the region that would otherwise filter water. Further, development dramatically increases the amount of impervious surfaces, which in turn can increase the volume of runoff of pollutants, increase erosion, and slow groundwater replenishment, depleting water supplies. A one-acre parking lot, for example, creates 16 times more runoff than a meadow of the same size.[18] In addition, a study examining two different development patterns for the same property found that a sprawl development alternative would cause 43% more runoff, and contain three times more sediment, than a better designed, more traditional development.[19]

In addition, land cleared for roads and development can deposit silt in rivers and streams, and road use and maintenance can introduce pollutants such as de-icing chemicals and herbicides into the water. For example, sediment from the construction of State Route 840 in Williamson County has muddied and silted streams in the Turnball Creek watershed, damaged a pristine lake, and forced a water treatment plant that supplies drinking water to Fairview and Dickson County to shut down or cut back production on numerous occasions because the water was too dirty to be treated successfully.[20] A Tennessee Department of Environmental and Conservation (TDEC) report identified sediment damage to eight streams and creeks as a result of the project, including sediment deposits of a foot or more in some cases.[21] The report concluded that highway construction had caused "massive sedimentation" of the streams and had likely had devastating impacts on some aquatic species. These incidents resulted in the Tennessee Department of Transportation and its contractor being fined by the TDEC for violating the Tennessee Water Quality Control Act.

Overall, a recent TDEC report concluded that water quality in Middle Tennessee is "generally good," but found that multiple streams have bacteria advisories due to urban runoff and the discharge of inadequately treated wastes.[22] Within the 10-county region, cities with "significant" waste treatment problems include Nashville, Franklin, and Murfreesboro. In addition, the report found that stormwater discharges from these localities, as well as Clarksville, Columbia, and Lebanon, were harming streams.

Health

The quality of the air we breathe has a significant impact on our health. Air pollutants can damage lung tissue, and, as noted above, nitrogen oxides, soot, ash, small particle pollutants, sulfur dioxide, and toxic pollutants are among the harmful emissions from burning fossil fuels in motor vehicles.

Nitrogen oxides, for example, are a major contributor to ground-level ozone, which can cause pain when inhaling, shortness of breath, coughing, and headaches. Long-term exposure can result in more frequent and severe respiratory pain and possible lung tissue damage. Children, the elderly, and people who suffer from asthma and chronic breathing disorders are particularly vulnerable to the health problems caused by ozone pollution. This is a significant percentage of the region's population. In the six Middle Tennessee counties that have exceeded the health standard for ozone in the past five years, the American Lung Association estimates that there are over 222,000 children under age 14, more than 110,000 people over 65, approximately 14,000 cases of pediatric asthma, more than 27,000 people with adult asthma, and over 36,000 people with adult chronic bronchitis.[23] In addition, anyone exercising or working outdoors also faces increased health risks from ozone pollution. As a result of the number of high ozone days in unhealthy ranges, a new report from the American Lung Association gives Davidson, Rutherford, Sumner, Williamson, and Wilson counties a failing grade on air quality.

Air Pollution and Health: At-Risk Groups at High Ozone Levels

County	Under 14	Over 65	Pediatric Asthma	Adult Asthma	Adult Chronic Bronchitis	Grade
Davidson	101,629	61,679	6,414	14,230	18,767	F
Dickson	9,503	4,838	608	1,064	1,403	*
Rutherford	37,904	12,534	2,399	4,172	5,502	F
Sumner	27,237	13,040	1,756	3,135	4,135	F
Williamson	27,515	10,077	1,745	2,926	3,859	F
Wilson	18,719	7,842	1,180	2,122	2,798	F
Regional	222,507	110,010	14,102	27,649	36,464	

Notes: "*" Indicates incomplete monitoring data for all three years.

(2) Adding across rows does not produce valid estimates except for the calculation of pediatric and adult asthma.

Source: The American Lung Association of Tennessee, *State of the Air: 2001*

Several studies have shown that deaths and visits to emergency rooms for breathing difficulties increase when air pollution levels are high. One study estimated that the ozone-related adverse health effects for Nashville during the 1997 ozone season include 1600 hospital admissions for respiratory ailments, 420 emergency room visits, and 19,000 asthma attacks.[24]

Historic Resources

Tennessee's rich heritage of historic and cultural resources offers a wide range of benefits, both tangible and intangible, including helping to define our sense of community, our sense of place, to educate us about our past, and to strengthen our economy. There are currently 508 listings on the National Register of Historic Places in the 10 county Middle Tennessee region.[25]

Yet many historic resources have been lost or are threatened as a result of insensitive land use and transportation decisions. As Dick Moe, president of the National Trust for Historic Preservation, has stated, "Preservation is in the business of saving special places and the quality of life they support, and sprawl destroys both."[26] For example, the National Parks Conservation Association recently ranked the Stones River National Battlefield in Murfreesboro as one of the 10 most endangered parks in the country. According to the NPCA, the park currently protects only a small percentage of this historic site, and a planned highway interchange and commercial development threaten the battlefield.[27]

ENDNOTES

[1]National Association of Local Governmental Environmental Professionals, *Profiles of Business Leadership on Smart Growth* (1999), p. 4.

[2] Nashville Area Chamber of Commerce, *Beyond Gridlock: An attainable transportation program for Middle Tennessee* (June 1999), p. 4, citing consultant Kate McEnroe.

[3] Letter from Governor Don Sundquist to John H. Hankinson, Jr., Regional Administrator, US EPA Region IV, June 30, 2000.

[4] Tennessee Dept. of Tourist Development (www.tourism.state.tn.us); interview with department staff.

[5] U.S. Travel Data Center, *The Economic Impact of Travel on Tennessee Counties in 1998*.

[6] *See, e.g.*, Burchell, "Economic and Fiscal Costs (and Benefits) of Sprawl," *Urban Lawyer* Vol. 29, p. 159 (1997).

[7] Jim Rhody, *The Public Costs of Growth: An In-Depth Analysis of Impact Fees for Policy-Makers* (1995).

[8] J. Dutch Horchem and Robert R. Gottfried, *Growth: Boon or Bane?: An In-Depth Analysis of the Possible Fiscal Effects of Economic and Population Growth on Franklin County, Tennessee*, 1998(available at www.landusegis.org).

[9] American Farmland Trust, Fact Sheet Cost of Community Service Studies (available at www.farmland.org).

[10] BLS Consumer Expenditure Surveys are available at http://stats.bls.gov/csxhome.htm.

[11] Surface Transportation Policy Project, *Driven to Spend* (2000).

[12] Metropolitan Health Department, Division of Pollution Control, *Metropolitan Nashville and Davidson County, Tennessee 1999 Annual Report*.

[13] Office of Air Quality Planning and Standards, U.S. EPA, *National Air Quality and Emissions Trend Report*, 10 (1997).

[14] 1 - hour data from EPA Office of Air Quality Planning and Standards, AIRData Monitor Reports (http:www.epa.gov/air/data/monitors.hrml); 8-hour data from TDEC, Air Pollution Control Office, presented at a meeting of the Tennessee Air Pollution Control Board on January 10, 2001.

[15] Interview with Joe Rand, Tennessee Department of Revenue (citing Tennessee Geographic Area Series Data from the Census Bureau).

[16] Bureau of Transportation Statistics, U.S. Department of Transportation, *Transportation Statistics Annual Report 1999*, p. 114.

[17] Transportation Research Board, Committee for a Study on Transportation and a Sustainable Environment, *Toward a Sustainable Future: Addressing the Long-Term Effects of Motor Vehicle Transportation on Climate and Ecology*, Special Report 251, p. 79 (1997).

[18] Chesapeake Bay Foundation, *A Better Way to Grow: For More Livable Communities and a Healthier Chesapeake Bay* (1996), p. 4.

[19] South Carolina Coastal Conservation League, "Getting a Rein on Runoff: How Sprawl and the Traditional Town Compared," Land Development Bulletin, Fall 1995.

[20] Edward Terry, "Construction firm, TDOT cited again for stirring up silt," *The Tennessean*, October 18, 2000; Cecily Haithcoat, "Report confirms 840 work has damaged private lake," *The Tennessean*, December 28, 2000.

[21] Memorandum from Joey Woodard, "Summary of sediment impacts to Turnball Creek and tributaries," TDEC, Division of Water Pollution Control, September 7, 2000.

[22] TDEC, Division of Water Pollution Control, *The Status of Water Quality in Tennessee: 2000 305(b)Report*, p. 22.

[23] American Lung Association, *State of the Air: 2001*.

[24] Clear the Air, *Out of Breath: Health Effects from Ozone in the Eastern United States,* Oct 1999.

[25] Interview with Tennessee Historical Commission, April 16, 2001.

[26] NPCA Press Release, October 4, 2000 (available at www.npca.org/media_center/stones_river.asp).

NEW DIRECTIONS

The dramatic loss of open space, farmland, and forests and the rise in traffic congestion have brought growth issues to the forefront of public debate in Middle Tennessee. Awareness of the causes and consequences of growth is rising among citizens and decisionmakers, as are efforts to find innovative approaches that will protect our quality of life without limiting economic growth.

Understanding Sprawl

There is increasing understand that the land use and transportation trends shaping this region are not simply the result of consumer choice or a necessary byproduct of economic growth.

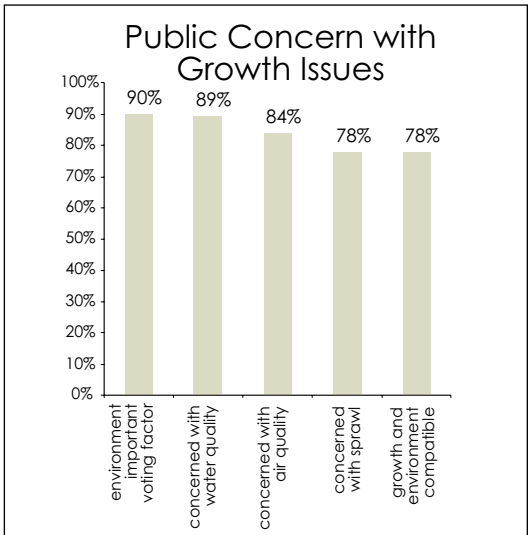
A host of government subsidies, regulations, and decisions are a primary factor promoting scattered development by making it cheaper and easier to develop far from existing communities. For example, as discussed above, taxpayers often subsidize the costs of providing roads, schools, water, and sewer facilities to new development. As long as taxpayers cover these costs, there is little incentive to build where infrastructure already exists. In addition, planning and zoning policies requiring large lots and the geographic separation of commercial and residential uses encourage scattered development and driving. Other regulations, such as building code requirements, frequently drive up the cost of redeveloping existing structures. And state and local transportation spending often subsidizes roads that open new areas to development or make it easier to live further from existing communities.

Recognizing the role governmental policies and decisions can play in fostering sprawl highlights the fact that sprawl is not inevitable, and suggests some of the opportunities for choosing how we want to grow.

Public Opinion

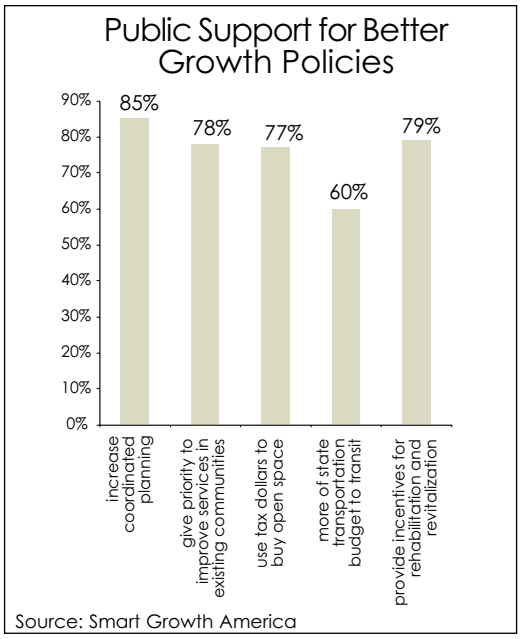
There is strong public concern over growth issues. A poll conducted for the Tennessee Conservation Voters Education Fund found that 9 out of 10 voters ranked environmental issues as an important factor when deciding how to vote.[1] When asked which environmental issues were of greatest concern, 89% identified water quality and 84% air quality. When asked about growth and sprawl, 78% expressed concern.

There is also strong public support for changing current land use and transportation approaches. In a nationwide poll, 85% of the people surveyed



Source: TN Conservation Voters Education Fund

supported increasing coordination among towns to plan for growth, and 78% supported state governments giving funding priority to maintaining schools, roads, and other services in existing communities rather than encouraging development in the countryside.[ii] In addition, almost 8 out of 10 people supported community redevelopment tools such as providing tax credits and low interest loans for rehabilitating historic properties and for revitalizing city and older suburban neighborhoods.



Further, a significant majority of people support increased funding for public transportation improvements, even if this means less money for highways. When asked to identify the best long-term solution to reducing traffic, the largest proportion (47%) chose public transportation, and 28% chose developing communities where less driving was needed. Only 21% supported road building. Similarly, Federal Highway Administration surveys have shown that the public is much more likely to support expanding public transportation or building new bikeways and sidewalks than to support new highways.[3]

In addition to these expressions of public interest in growth issues and support for better policies, press coverage of growth issues has increased in Middle Tennessee. This coverage has included a four-part series of articles by Neal Peirce and Curtis Johnson in *The Tennessean* in 1999 that examined growth in the 10-county region and helped to focus attention on these issues.

Conferences and panels on growth issues and solutions have also both responded to and helped to spur public interest in these issues. For example, Vanderbilt University and the Greater Nashville Regional Council sponsored a "Regional Planning Summit," the Cumberland River Compact recently held a conference to look at limiting the impact of development of waterways, and groups such as the Urban Design Forum in Nashville and the Heritage Foundation in Franklin have sponsored speakers series on a number of growth-related topics.

The range of organizations and individuals interested in finding better ways to grow has continued to broaden. Business groups, for example, have been active in recent years in seeking alternatives to current policies, such as the support of the Nashville Area Chamber of Commerce for a more balanced transportation program that includes light rail and commuter rail.

Strategies and Solutions

A number of promising efforts are underway to capture the benefits of growth while avoiding the economic, fiscal, health, and environmental costs of rapid, poorly-planned development. These efforts include strategies and solutions designed to strengthen communities, to offer more transportation choices, and to protect open space and farmland.

Building Better Communities

Revitalizing existing communities and carefully planning new development are essential to capturing economic growth while improving the quality of life for residents. Guiding growth to existing communities can also reduce the pressure on undeveloped lands by providing attractive alternatives for residents and businesses, and it can reduce the fiscal impacts of growth by encouraging development in areas already served by roads, schools, water and sewer. Further, bringing development to existing communities often decreases travel times to work and other activities.

The new state planning law enacted in 1998 (Tennessee Public Chapter 1101) is intended to accomplish some of these goals by bringing localities together to work cooperatively to provide more efficient and orderly development.[4] In an effort to meet growth demand while protecting the character of rural areas, it required each county to adopt a growth plan that designates urban growth areas for cities and towns, areas in the county for future growth, and areas to remain rural. Although designating development areas can be useful in targeting growth, the act has produced a number of disputes among localities and resulted in plans of varying quality.[5] The legislation has succeeded, however, in raising awareness of development issues.

There has been a recent increase in efforts to revitalize existing communities, encouraging the development of vacant lands and the rehabilitation and redesign of buildings, streets, sidewalks, and other elements of a community. Perhaps the most ambitious community revitalization effort in the region involves the East Nashville area. Spurred by a devastating tornado on April 16, 1998, a comprehensive redevelopment plan for an area with approximately 25,000 residents was crafted in large part by a team of national experts working with the community.[6] Implementation of the plan is being led by Rediscover East!, a broad-based grassroots group. A number of steps have already been taken, such as adopting design guidelines, recruiting new development, enforcing building codes, and planting trees in order to create an attractive, pedestrian-friendly community. These efforts are beginning to pay off. Buildings are being refurbished, new businesses are opening, and property values are increasing. Property values in the area increased by over 28% in the past year alone, the highest increase in Davidson County.[7]

One of the many ways to encourage such efforts is to revise local policies and regulations, such as zoning and building codes, which have often made redevelopment more difficult. As Metropolitan Development and Housing Agency director of community development Phil Ryan noted, in an older area of Nashville "you pretty much have to tear down every other structure" as part of a redevelopment project in order to build the mandated number of off-street parking spaces for buildings that remain.[8] Some of the necessary zoning code changes have already been made to encourage redevelopment in Nashville, and other positive changes are emerging, such as promoting mixed use development to permit jobs, housing, recreation and other activities to be closer together, thus reducing the need to travel by car.

Redevelopment efforts in the Nashville area should receive a significant boost from the opening of the Nashville Civic Design Center, a non-profit organization that will offer education and technical advice to developers, policymakers, and citizens on how to design more livable communities.[9] Chattanooga, Birmingham, Louisville, and Lexington are some of the cities that have

benefited from such a center. The Civic Design Center stems from an ad hoc committee formed by Mayor Bill Purcell, and Vanderbilt University, the University of Tennessee at Knoxville, and Metro are all providing personnel to establish the Center.

A More Balanced Transportation System

Although the region's transportation system has brought many benefits, it also has brought air pollution, increased traffic congestion, and the dubious distinction of having the highest rate of motor vehicle travel in the country. As the region's population grows, and people spread farther and farther out, we have built more and more highways to accommodate more and more cars, creating more and more driving and more and more pollution. And with a controversial $1.2 billion, 187-mile ring road partially constructed, that cycle is repeating itself on an ever larger scale.

State and local transportation programs currently focus almost exclusively on new roads. Over 60% of TDOT's current $1.4 billion budget goes to building new highways, freeways, and bridges. Much of the rest of the money goes to road maintenance, and only 3% goes to transit. Tennessee ranks among the bottom tier of states in the amount of federal transportation funds it spends on projects other than new roads.[10] Similarly, the current long range transportation plan for the Nashville Area Metropolitan Planning Organization – which covers Davidson, Rutherford, Sumner, Williamson, and Wilson counties – earmarks 86% of transportation spending over the next 25 years to new, widened, or improved roads.[11]

As noted earlier, experience has shown that this focus on new road projects often is not an effective strategy, since new road capacity encourages further driving. Certainly the rapid increase in driving and traffic in the region suggests that we cannot build our way out of congestion. New road projects also can encourage sprawl by opening new areas to development and, by making it cheaper and easier to live farther out, draw residents and businesses away from existing communities. Further, funneling such a large share of available transportation funds to roads limits people's transportation choices since the facilities needed to make other methods of transportation safe or convenient often do not exist or are in poor condition due to a lack of funding.

There are signs that the region is beginning to move toward a more balanced, less costly transportation approach that can improve mobility without fostering as much sprawling development or producing as much pollution, although these developments are minor compared to the enormous expenditures on roads.

There have been efforts to maximize the capacity of existing roads and thus reduce the need for new roads. For example, a few high occupancy vehicle (HOV) lanes have been established which set aside a portion of the roadway during peak traffic periods for the use of vehicles carrying multiple passengers, and construction is underway on two new routes with HOV lanes.[12]

There also has been some movement toward providing a broader range of safe and efficient transportation options. These options, such as public transit, can help to reduce congestion, and are less polluting and less costly than road projects. As the Nashville Area Chamber of Commerce has recognized, to remain "a desirable place to live and do business, we need a regional transportation system that offers people a comfortable, convenient alternative to driving their cars."[13]

Yet Nashville continues to lag behind other similarly sized cities in providing such alternatives. Various rail options have been studied for the region, and additional transit studies are ongoing. Current transportation plans, however, do not call for implementing light rail service for decades, citing its high cost. Regional plans do project completing a commuter rail system in 2015. This service, which would use existing rail lines, could substantially reduce vehicle miles traveled. However, a number of hurdles to this proposal remain.

Some improvements have been made to the transit services that are currently provided that will make these services a more viable transportation option. The Metropolitan Transit Authority (MTA), for example, recently added 30 lighted bus shelters and 600 benches, responding to a 26-point plan proposed by a community group, Tying Nashville Together (TNT), to improve the bus system.[14]

Bicycling and walking have largely been ignored as viable transportation options. Throughout the 1990s, the state spent just 74 cents per person each year to encourage bicycling or walking. Yet over one-fourth of all trips in the U.S. are less than one-mile, and walking and biking could help to eliminate many short vehicle trips.[15] Due in part to increased federal funding, there recently has been some increase in bicycle and pedestrian projects in the region, including the Riverwalk in Clarksville, Cedar City Trail in Lebanon, and Lytle Creek Greenway in Murfreesboro. In addition, Metro allocated approximately $12 million of last year's bond package to sidewalks (more than was spent on sidewalks during the past five years combined), and it also is currently implementing a Pilot Bikeway Project that will increase the number of bike facilities from three miles of bike lanes to approximately 20 miles of street-based bike facilities.[16]

Protecting Rural and Natural Areas

Efforts to protect rural, natural, and historic areas from the explosive development sweeping the region have also increased. The formation and activities of non-profit land trusts, for example, are on the rise. Nationwide, there are over 1,200 private land trusts, protecting more than 4.7 million acres.[17] There are an estimated 26 land trusts active in the state, many of which work in Middle Tennessee.[18] The Land Trust for Tennessee, for example, was formed in 1999 by former Nashville mayor Phil Bredesen and other community members to protect natural resources and historic sites, primarily in Middle Tennessee. The Maury County Heritage Trust is the newest land trust in the region. Formed in 2000, it is working to protect the farmland and natural resources of Maury County, with an emphasis on protecting the Duck River watershed.

The primary tool used by land trusts and individuals seeking to protect their land is the conservation easement, a voluntary agreement between a land owner and a private non-profit organization or government agency that limits certain uses of land in order to protect its conservation value.[19] The terms of the easement can be tailored to the particular individual or property. In addition to guaranteeing protection of their land, landowners usually receive significant financial benefits from donating an easement, such as reduced federal income taxes and estate taxes, and lower local property taxes.

In Williamson County, for example, Preston Ingram and his family have donated to the Land Trust of Tennessee a permanent conservation easement on 510 acres of historic and scenic lands located just off the Natchez Trace Parkway.[20] The site is on the National Register of Historic Places, and the easement will protect the historic farm, wildlife habitat, and scenic views in Leiper's Creek valley.

Conservation buyers are another land conservation option being used in the region. Employing an innovative model, John Noel and Paul Sloan created Parnassus, a for-profit company engaged in conservation. They purchased 2,000 acres of land threatened with development in the pristine headwaters area of the South Harpeth River, an area of rich biodiversity in Williamson County. Along with several other property owners, a total of 4,100 contiguous acres has now been acquired that the owners intend to place under conservation easements in order to protect the natural habitat.[21]

A Comprehensive Vision

Strategies and solutions for addressing the challenges of growth are most effective when they are tailored to fit the needs, desires, and political and cultural realities of a particular region or community. A visioning process can be an effective strategy for fostering public participation in forming a collective vision of the future and in assessing that vision in light of the likely impacts of current trends. That information can then be used to try to form a consensus and to make effective choices about how to grow.

In Middle Tennessee, visioning processes are underway that have a local and a regional focus. Franklin Tomorrow is working to create and implement a shared vision for the future of Franklin Tennessee,[22] and Cumberland Region Tomorrow is launching a visioning process for the entire 10-county region to ultimately inform decisions affecting the pattern and character of development in the region.

As the challenges of growth increasingly transcend city and county boundaries, Middle Tennessee is fortunate to have some experience with regional cooperation to address growth issues. The Nashville Area Metropolitan Planning Organization (a transportation planning body created under federal law that operates in five counties) and the Greater Nashville Regional Council (a regional planning and economic development body created by the state that works in 13 counties) provide some experience with regional coordination. However, the magnitude of current problems require even greater regional cooperation and commitment to develop a comprehensive, integrated approach to land use, community design, and transportation that can address the range of land use and transportation challenges facing the region.

Charlotte-Mecklenburg has recently made such a commitment. Following a comprehensive public involvement process, the local governments of the Charlotte-Mecklenburg area recently created a 2025 integrated Transit/Land Use Plan that addresses the necessary land use and community design characteristics, and the transportation improvements, needed to address growth pressures in that area. This plan outlines how the local governments will, in coordination with the Charlotte-Mecklenburg Planning Commission and the Metropolitan Transit Commission, not

only pursue mass transit, but will also revise their master plans and zoning ordinances to focus future development along and within agreed upon transportation corridors and transportation center areas, adopt incentive packages that encourage development around transit stations, and acquire key parcels within transit station areas in order to ensure that their development complements transit service. With this comprehensive implementation strategy to guide them, the Charlotte-Mecklenburg region is planning to spend more than twice as much on transit capital improvement projects over the next 25 years than is the Nashville area.[23]

The scale and the scope of the challenges presented by population, land use, and transportation trends in Middle Tennessee will require solutions at both the local and the regional level. While many factors in Middle Tennessee threaten the very things that have made this region so attractive, numerous strategies and solutions are available that can help the region to promote economic growth while protecting our pocketbooks, our health, our communities, and our natural and historic areas.

ENDNOTES

[1]Data in this paragraph is from League of Conservation Voters Education Fund, "Tennessee Statewide Public Opinion Poll" (www.lcvedfund.org/tennessee.html)(poll conducted by Beth Schapiro and Associates, Jan. 11-19, 2000).

[2] The polling data in the next two paragraphs is from Smart Growth America, *Greetings from Smart Growth America*, pp. 2-4 (2001) (citing study conducted by Beldon Russonello& Stewart, September 2-10, 2000).

[3] Federal Highway Administration, *Moving Ahead: The American Public Speaks on Roadways and Transportation in Communities* (www.fhwa.dot.gov/reports/movingahead.htm).

[4] See, e.g., University of Tennessee Institute for Public Service website (www.ips.utk.edu/growthpolicy) for more information on Public Chapter 1101.

[5] Christine Kreyling, "Sprawling Toward the Apocalypse: A Report from the Field," *The Nashville Scene*, December 2, 1999.

[6] For more information, see the Rediscover East! website at http://www.rediscovereast.org.

[7] Colleen Creamer, "Property values in East Nashville jump by 28.6%," *The City Paper*, April 18, 2001.

[8] Christine Kreyling, "Winds of Change: Will Tornado Prompt New, Urban Friendly Zoning Rules, *The Nashville Scene*, Feb. 3, 2000.

[9] Christine Kreyling, City Blueprint: Nashville is finally getting a civic design center," *The Nashville Scene*, December 14, 2000; Anne Paine, "Design center to help shape city's growth," *The Tennessean*, December 19, 2000.

[10] Surface Transportation Policy Project,*Changing Direction: Federal Transportation Spending in the 1990s.* (2000). The state spent an average of $64.10 per capita per year of federal funds on road projects in the 1990s, $6.22 per year on transit projects, and 74 cents per person each year to encourage bicycling or walking. In addition, only 0.6% of the "flexible" federal transportation dollars that can be used for any transportation need were spent on anything other than roads.

[11] Nashville Metropolitan Planning Organization, 2025 Nashville Area Long Range Transportation Plan, pp 63-64.

[12] HOV lanes are currently on I-65 South from Harding Place in Davidson County to SR 96 in Williamson County; I-24 East from Old Hickory Boulevard in Davidson County to Sam Ridley Parkway in Rutherford County;; and I-40 East between Old Hickory Boulevard and SR 171 in Wilson County. LRTP, 9. Construction is underway on HOV lanes on I-65 north of downtown and on I-24 both north and south of downtown.

[13] Nashville Area Chamber of Commerce, "Beyond Gridlock: An attainable transportation program for Middle Tennessee," June 1999, p. 4.

[14] Interview with Bob Babitt, Executive Director, MTA; Dorren Klausnitzer, "MTA adds shelters, late-night service," *The Tennessean*, February 15, 2000.

[15] Constance Beaumont, *Smart States, Better Communities*, (1996), p. 225.

[16] Interview with Tim Netsch, Pedestrian and Bicycle Coordinator for the Nashville Area MPO.

[17] Land Trust Alliance, http://www.lta.org. These are 1998 figures; both the number of land trusts and the amount of land protected have continued to increase since then.

[18] Land Trust Alliance.

[19] The Tennessee Parks and Greenways Foundation has prepared a useful booklet on conservation easements and other land protection tools, entitled "Landowner's Options… A guide to the voluntary protection of land in Tennessee." (call 615-386-3171 or visit their website at www.tenngreen.org).

[20] The Land Trust for Tennessee, http://www.landtrusttn.org.

[21] SELC interview with Paul Sloan, April 20, 2001.

[22] http://www.franklintomorrow.org

[23] $831 million in Charlotte; $380 million in Nashville.

Southern Environmental Law Center

Regional Headquarters
201 West Main Street, Suite 14
Charlottesville, VA 22902-5065
804-977-4090

Carolinas Office
200 West Franklin Street, Suite 330
Chapel Hill, NC 27516-2520
919-967-1450

Deep South Office
The Candler Building
127 Peachtree Street, Suite 605
Atlanta, GA 30303-1800
404-521-9900

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